

REMARKS

Reconsideration of the application in view of the following remarks is respectfully requested.

I. Status of the Claims

Claims 12-46 were previously pending in this application.

Claims 12-46 stand rejected.

II. Claim Rejections – 35 U.S.C. § 112

Claims 19, 27, and 36 stand rejected under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement. These claims require “a first cluster of control circuits and a second cluster of control circuits, the first cluster of control circuits being characterized by a higher degree of coupling between control circuits of the first cluster relative to a lower degree of coupling between control circuits of the first cluster and control circuits of the second cluster.” The Examiner states that there is no description in the specification which illustrates which circuits result in higher or lower coupling. In response, Applicants direct the Examiner’s attention to paragraph 189 of the published application which states that “[g]enerally, the coupling between units inside a cluster is stronger than between units at the boundary of clusters” (Published application, paragraph 189). Moreover, Applicants respectfully direct the Examiner’s attention to page 29 of the present office action wherein the Examiner withdraws written description rejections to claims 19, 27, and 36 based on similar arguments raised by the Applicants in response to an identical rejection in the office action dated August 13, 2007. Accordingly, Applicants request that these rejections be withdrawn.

Claims 19, 27, and 36 also stand rejected under 35 U.S.C. § 112, second paragraph, for being indefinite because, according to the Examiner, the word ‘generally’ as used in the specification is indefinite. The specification states “[g]enerally, the coupling between units inside a

cluster is stronger than between units at the boundary of clusters” (Published application, paragraph 189). The term ‘generally’ is defined as “usually; commonly; ordinarily” (Random House Webster’s Unabridged Dictionary (2nd ed. 1998)). Thus, the specification discloses that the coupling between units inside a cluster is *usually* stronger than between units at the boundary of clusters. Therefore, the specification discloses two distinct scenarios: usually, the coupling between units inside a cluster is stronger than the coupling between units at the boundary of clusters; and, less commonly, the coupling between units at the boundary of clusters is stronger than or equal to the coupling between units inside a cluster. The term ‘generally’ is not recited in the claims. Claims 19, 27, and 36 each recite “the first cluster of control circuits being characterized by a higher degree of coupling between control circuits of the first cluster relative to a lower degree of coupling between control circuits of the first cluster and control circuits of the second cluster.” Thus, Applicants respectfully submit that these claims are directed to the first scenario disclosed by the specification and are therefore not indefinite. Accordingly, Applicants request that these rejections be withdrawn.

Claims 13, 21, 30, and 38 stand rejected under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement because they use the term “phase characteristic”, which the Examiner contends is not described in the specification in connection with the phase characteristic of an output of a first circuit being maintained relative to a phase characteristic of an output of a second circuit. In response, Applicants respectfully direct the Examiner’s attention to paragraphs 194 and 201 of the published application, which describe phase synchronization among units. Applicants further direct the Examiner’s attention to page 31 of the present office action wherein the Examiner withdraws rejections of claims 13, 21, 30, and 38 based on the Applicants’ arguments in response to an identical rejection in the office action dated August 13, 2007. Accordingly, Applicants respectfully request that these rejections be withdrawn.

III. Claim Rejections – 35 U.S.C. § 103

Claims 12-46 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the published article “Modeling inferior olive neuron dynamics” by Velarde et al. (“Velarde”), in view

of the published article “Cerebellar Learning for Control of a Two-Link Arm in Muscle Space” by Fagg et al. (“Fagg”). Applicants respectfully traverse these rejections.

A rejection based on a publication may be overcome by showing that it was published either by the Applicants themselves or on their behalf, unless it is a statutory bar (See MPEP 2132.01, MPEP 715.01(c)). “The rejection can ... be overcome by submission of a specific declaration by the applicant establishing that the article is describing applicant’s own work” (MPEP 2132.01, citing *In re Katz*, 687, F.2d 450, 215 USPQ 14 (CCPA 1982)).

Applicants respectfully submit that Velarde describes Applicants’ own work. Attached as Exhibit A is the Rule 132 Declaration of Rodolfo R. Llinas, Vladislav V. Papko, Viktor B. Kazantsev, Vladimir I. Nekorkin, and Vladimir Makarenko, which states that the Velarde reference relied upon by the Examiner in making the obviousness rejections describes Applicants’ own work and that the Applicants are the only inventors of the portions of the article relied upon by the Examiner in making the rejections. The Declaration establishes that the other co-author of the Velarde reference (i.e., Manuel G. Velarde) is not a co-inventor of the subject matter described and claimed in the present application. The Declaration further establishes that co-author Manuel G. Velarde contributed to the Velarde reference by providing administrative coordination of research efforts between the other co-authors and by providing non-substantive support which resulted in accelerated preparation of the manuscript and prompt publishing. These contributions were administrative in nature and did not amount to an inventive contribution to the conception of the claimed invention.

Moreover, Applicants submit that Velarde does not qualify as a statutory bar. Velarde was published in the January, 2002 edition of Neural Networks and was made available online November 7, 2001. The present application claims priority to U.S. Provisional Application Serial No. 60/405,191, filed August 21, 2002. Therefore, Velarde was published less than one year prior to the effective filing date of the present application, and thus, does not qualify as a statutory bar.

Further, Fagg does not disclose, teach, or suggest all of the required elements of claims 12-46. Fagg does not disclose an oscillation output signal, a first spike signal, and a second spike

signal that collectively form a composite output signal which is capable of controlling an actuating element as required by each of the independent claims. Additionally, Fagg does not disclose characteristic information of an actuating element being provided as part of an input signal to a control circuit to thereby adjust one of the amplitude, phase and frequency of the oscillation output signal. At least for the aforementioned reasons, Fagg does not anticipate the independent claims of the present application.

In light of the foregoing, Applicants respectfully submit that Velarde is not prior art to the present application and that Fagg does not teach or suggest all of the required elements of claims 12-46. Accordingly, Applicants respectfully request that the rejections under 35 U.S.C. §103(a) be withdrawn. Applicants further submit that claims 12-46 are in condition for allowance.

CONCLUSION

In view of the foregoing remarks and arguments, Applicants believe the pending application is in condition for allowance and it is respectfully requested that the application be reconsidered and that all pending claims be allowed and the case passed to issue.

If there are any other issues remaining that the Examiner believes could be resolved through a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

Dated: November 14, 2008

Respectfully submitted,

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